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Selection of introductory webcasts on neutron transport at the fuel cell and assembly levels

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Summary

This document presents the advertising video that was created for the course on "Neutron transport at the fuel cell and assembly levels", as well as a selection of some technical videos to be watched by the prospective participants to the course.

Approval

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History

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Abbreviations and Acronyms

Acronym	Description
WP	Work Package



Executive Summary

This document presents the advertising video that was created for the course on “Neutron transport at the fuel cell and assembly levels”, as well as a selection of some technical videos to be watched by the prospective participants to the course.

Keywords

Webcast/videos, active learning, flipped classroom, hybrid teaching



I. Introduction

The EU-funded GRE@T-PIONEER project aims at developing a specialized education in reactor physics and nuclear reactor safety offered to PhD and postdoc students, to nuclear engineers and professionals. The courses developed can also be taken as advanced courses by motivated MSc students.

The education encompasses both theory and hands-on training exercises, the latter heavily relying on the use of research/training reactors and of computer-based modelling environments. The aim is for the students to be able to perform nuclear reactor physics and safety simulations, understanding all the approximations on which such simulations rely: this is considered essential knowledge in the education of highly skilled nuclear safety analysts. The use of pre-recorded lectures and electronic teaching resources allows students to learn at their own pace and get prepared for the hands-on training sessions, following a flipped classroom approach: these sessions are offered in a hybrid set-up (i.e., they could be attended both on-site and remotely). They use active learning methods under the close supervision and support of the teachers, thus promoting student learning.

This document presents the advertising video that was created for the course on “Neutron transport at the fuel cell and assembly levels”, as well as a selection of some technical videos (part of the asynchronous material made available to the course participants), here offered openly to be watched by the prospective participants to the course. The advertising video is mostly used for promoting the opening of the course registration, whereas the technical videos aim at giving a flavour of the actual technical contents of the course.

2. Advertising video

The Work Package (WP) Leaders of the GRE@T-PIONEER project gathered on June 27th – 28th, 2022, in Gothenburg, Sweden, to record a set of advertising videos to be used on the project website and social media channels each time the registration to a GRE@T-PIONEER course opens. The recording was made using the services of a company Chalmers University of Technology has an agreement with. The videos were structured along the following lines:

- Fundamental question the course addresses.
- Introduction of the teachers.
- Explanation of the overall content of the course.
- Presentation of the learning objectives of the course.
- Target audience.
- Overview of the pedagogical method.
- Concluding words.



A snapshot of the video for the course on “Neutron transport at the fuel cell and assembly levels” is given in Figure 1. The video is available at <https://vimeo.com/742271656>

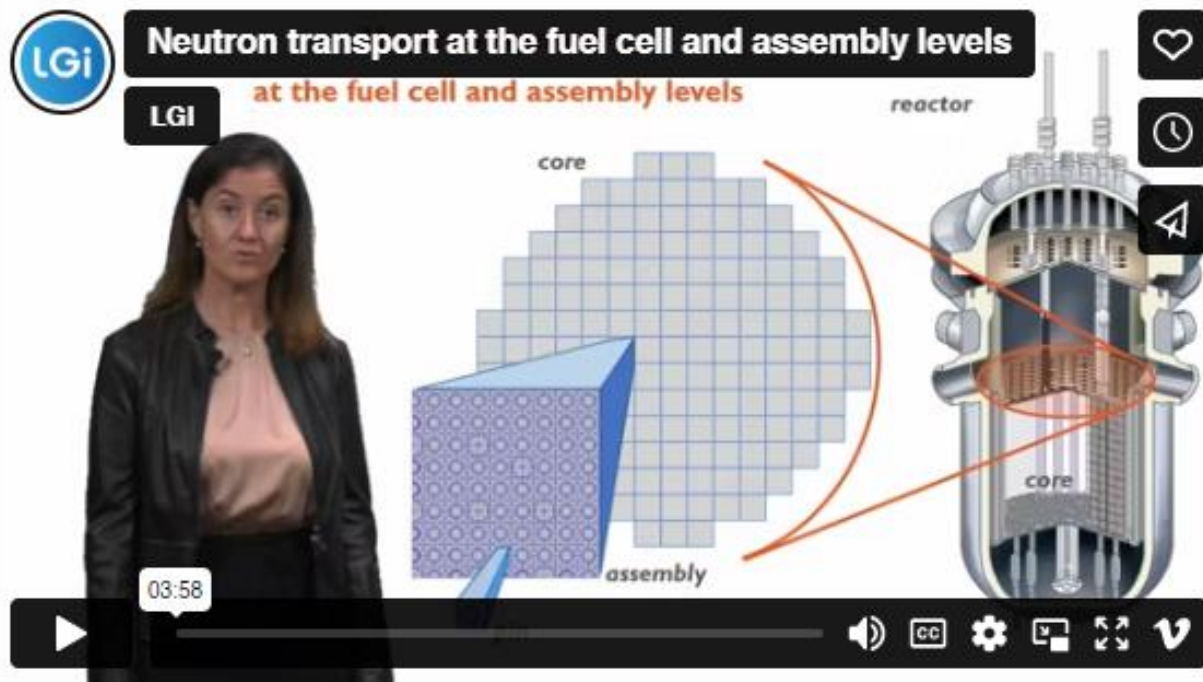


Figure 1. Snapshot of the advertising video used when the registration to the course opens.

In addition to the above advertising video specific to the WP3 course on “Neutron transport at the fuel cell and assembly levels”, an advertising video on the hands-on sessions at the training reactors (AKR-2, CROCUS and BME Training Reactor) was also produced. The structure of the video was different from the previous one:

- Fundamental question the hands-on training addresses.
- Introduction of the three teams of teachers (AKR-2, CROCUS and BME).
- Presentation of the learning objectives of the course.
- Target audience.
- Recordings at each of the three facilities with the associated teachers (AKR-2, CROCUS and BME).
- Concluding words.

A snapshot of such a video is given in Figure 2. The video is available at <https://vimeo.com/763299220>





Figure 2. Snapshot of the advertising video used when the registration to the hands-on sessions on the training reactors open.

3. Selection of a few technical videos/webcasts

In addition to the above described advertising videos, some of the videos/webcasts that were recorded by the various teachers participating to the course and that are available on the Learning Management System to the registered and accepted course participants were published on the course website. The purpose of making those videos directly accessible on the website is to give a better idea of the actual technical content of the courses, thus further promoting the courses and encouraging perspective participants.

For the WP3 course on “Neutron transport at the fuel cell and assembly levels”, the following videos/webcasts were selected:

- Formulation of the neutron transport equation. This video is available at <https://vimeo.com/815307933>
- 1D formulation of the transport equation. This video is available at <https://vimeo.com/815309131>
- Monte Carlo modelling. This video is available at <https://vimeo.com/815310201>



4. Conclusions

This report described the advertising videos that were already used during the promotion of the GRE@T-PIONEER courses in the academic year 2022/2023, as well as the selection of the technical videos/webcasts. The latter will be used when promoting the courses in the future.

